

# PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

## PCT

### NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

United States Patent and Trademark  
Office  
(Box PCT)  
Crystal Plaza 2  
Washington, DC 20231  
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

<b>Date of mailing (day/month/year)</b> 04 March 1999 (04.03.99)	
<b>International application No.</b> PCT/NZ98/00103	<b>Applicant's or agent's file reference</b> 23348 GWW/MDA/mh
<b>International filing date (day/month/year)</b> 16 July 1998 (16.07.98)	<b>Priority date (day/month/year)</b> 16 July 1997 (16.07.97)
<b>Applicant</b> O'CONNOR, Paul, Michael	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
01 February 1999 (01.02.99)

☐ in a notice effecting later election filed with the International Bureau on:  
\_\_\_\_\_

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	<b>Authorized officer</b>  <p style="text-align: center;">A. Karkachi</p> Telephone No.: (41-22) 338.83.38
---	--

PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

WEST-WALKER, Gregory, James  
West-Walker Bennett  
Mobil on the Park  
PO Box 1344  
157 Lambton Quay  
Wellington 6001  
NOUVELLE-ZÉLANDERECEIVED  
APR - 5 2000  
C 2708 MAIL ROOM

Date of mailing (day/month/year) 15 February 2000 (15.02.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 23348 GWW/MDA/mh	
International application No. PCT/NZ98/00103	International filing date (day/month/year) 16 July 1998 (16.07.98)

1. The following indications appeared on record concerning:		
<input type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input checked="" type="checkbox"/> the agent
<input type="checkbox"/> the common representative		
Name and Address WEST-WALKER, Gregory, James Russell McVeagh West-Walker The Todd Building Level 7 171-177 Lambton Quay Wellington 6001 New Zealand	State of Nationality	State of Residence
	Telephone No. +64-4-499-9058	
	Facsimile No. +64-4-499-9306	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input type="checkbox"/> the person	<input type="checkbox"/> the name	<input checked="" type="checkbox"/> the address
<input type="checkbox"/> the nationality		
<input type="checkbox"/> the residence		
Name and Address WEST-WALKER, Gregory, James West-Walker Bennett Mobil on the Park PO Box 1344 157 Lambton Quay Wellington 6001 New Zealand	State of Nationality	State of Residence
	Telephone No. +64-4-499-9058	
	Facsimile No. +64-4-499-9306	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  P. Regis
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

19

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

REC'D 26 APR. 1999

WIPO PCT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 23348 GWM/MDA	<b>FOR FURTHER ACTION</b>	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International application No. <b>PCT/NZ 98/00103</b>	International filing date ( <i>day/month/year</i> ) 16 July 1998	Priority Date ( <i>day/month/year</i> ) 16 July 1997
International Patent Classification (IPC) or national classification and IPC  <b>Int. Cl.<sup>6</sup> G06F 17/30</b>		
Applicant <b>O'CONNOR, Paul Michael</b>		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of **4** sheets, including this cover sheet.  
☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  
 These annexes consist of a total of **10** sheet(s).

3. This report contains indications relating to the following items:

- |      |                                     |   |
|------|-------------------------------------|---|
| I    | <input checked="" type="checkbox"/> | Basis of the report   |
| II   | <input type="checkbox"/>            | Priority  |
| III  | <input type="checkbox"/>            | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| IV   | <input type="checkbox"/>            | Lack of unity of invention  |
| V    | <input checked="" type="checkbox"/> | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| VI   | <input type="checkbox"/>            | Certain documents cited   |
| VII  | <input type="checkbox"/>            | Certain defects in the international application  |
| VIII | <input type="checkbox"/>            | Certain observations on the international application   |

Date of submission of the demand 1 February 1999	Date of completion of the report 12 April 1999
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No. (02) 6285 3929	Authorized Officer  <b>R. STOPFORD</b>  Telephone No. (02) 6283 2177

**I. Basis of the report****1. With regard to the elements of the international application:\***

- ☐ the international application as originally filed.
- ☒ the description, pages **4-11, 13**, as originally filed,  
pages , filed with the demand,  
pages **1, 2, 3, 3a, 12**, filed with the letter of **24 March 1999**.
- ☒ the claims, pages , as originally filed,  
pages , as amended (together with any statement) under Article 19,  
pages , filed with the demand,  
pages **14-17**, filed with the letter of **24 March 1999**.
- ☒ the drawings, pages **1, 2, 4-12**, as originally filed,  
pages , filed with the demand,  
pages **3**, filed with the letter of **24 March 1999**.
- ☐ the sequence listing part of the description:  
pages , as originally filed  
pages , filed with the demand  
pages , filed with the letter of

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:**

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

**4. ☐ The amendments have resulted in the cancellation of:**

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims 1-30	YES
	Claims	NO
Inventive step (IS)	Claims 1-30	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-30	YES
	Claims	NO

**2. Citations and explanations (Rule 70.7)**

WO 97/15023 A1 (CITIBANK N.A.) 24 April 1997

A sales process support system which includes a central database that receives comprehensive information from a variety of internal and external feeds, and standardizes and households the information in the three-level hierarchy (households, customers, and accounts) for use by a financial institution. The comprehensive information stored on the central database is accessed through workstations to generate lists of sales leads for marketing campaigns. A database engine is provided for generating logical access paths for accessing data on the central database to increase speed and efficiency of the central database. The system distributes sales leads electronically to branch networks, where the sales leads are used to target customers for marketing campaigns. The central database is accessed by workstations of a central customer information system for profiling customers, enhancing customer relationships with the financial institution, and electronically tracking sales and service performance during marketing campaigns. The central database may include information concerning existing customer financial information, information from outside sources, and demographic information about existing and potential customers. A central customer information system ("CCIS") preferably includes a relationship profile component, an account management component, a lead management system, or a sales tracking and reporting (management information system or "MIS") component. Searches of households can be limited to their organization level, geographic location, or other factor. A user may specify a product code at the service type level, such that a query can be answered in one step by using flags and summary variables at the household level.

Abstract, page 8 lines 10/16, page 12 lines 2/6, page 13 lines ¼, page 15 lines 1/3, page 34 lines 219/23, page 42 lines 31/33,

AU 55282/94 A1 (MOORE BUSINESS FORMS, INC.) 1 September 1994

Providing a retailer or a retail chain with the ability to process transactional information involving large numbers of customers and customer products by gathering information that uniquely identifies each product. Product, customer and transactional information is maintained in a relational database. Targeting of specific customers with marketing and other promotional literature is based on customer buying habits, needs, demographics, etc. Specific household demographic information is recorded. Consumer behaviour reports are generated, these show consumer buying behaviour across time intervals, store sites, product clusters, departments, and within consumer clusters.

Page 5, page 18, page 32

continued

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of : BOX V

WO 97/22074 A1 (CYBERGOLD INC.) 19 June 1997

According to the present invention, a centralized record keeping system receives record documents from one of a plurality of independent service providers. The system automatically links the record to a person who is the subject of the record by automatically extracting from the record demographic data on the subject and matching it to demographic data on the subject maintained in a database. Unique subject identifiers are not preassigned by the central record keeping system or used for linking. The records are stored in a repository and a list of linked records is maintained for each person. All records for a particular subject are then available for retrieval by querying the database of demographic data.

Page 4 lines 1/10.

WO 96/41288 A1 (E-SYSTEMS, INC.) 19 December 1996

A system provides for the immediate payment to computer and other users for paying attention to an advertisement or other "negatively priced" information distributed over a computer network such as the Internet. Called Attention Brokerage, this is the business of brokering the buying and selling of the "attention" of users. A further invention, Orthogonal Sponsorship, allows advertisers to detach their messages from program content and explicitly target their audience. Targeting users may be provided by reference to a data base of digitally stored demographic profiles of potential users. Information can be routed to users based on demographics, and software agents can be used to actively seek out users on a digital network. The demographic profiles can be constructed through interest questionnaires that the consumer completes when subscribing to the service, and also through electronic tracking of his/her usage of the service (and other habits). Thus, the profiles can be dynamic, evolving with the customer's transaction history. A customer can choose to exclude any transaction (e.g., viewing of certain material or purchasing of certain products) from his profile. Profiles can also be interactive in that a customer may edit his profile at any time to add or delete interest features, and to delete any transaction records.

Abstract, page 11 lines 1/13

No citation or combination of citations disclose all the features found in the claims, in particular, databases containing interaction information between customers and multiple merchants.

Consequently the claims are novel, and are seen as having an inventive step and are seen as industrially applicable.

## **METHOD AND SYSTEM FOR COMPILING DEMOGRAPHIC DATA**

### **BACKGROUND TO THE INVENTION**

5 This invention relates to a method and system for compiling demographic data.

Merchants are currently left in the difficult situation of having little or no idea of customers' characteristics. Their advertising and promotions are at best aimed at a hunch of what will attract existing and prospective customers to purchase from  
10 them. The merchants do not have details of demographic characteristics of their customers, for example geographic location, professional status, family size, etc. They do not know what other merchants their customers also purchase products from, and the merchants do not know what value to place on individual customers.

15 The same problem may also be experienced with other forms of interactions between merchants and customers involving, for example, call centres, help desk enquiry services and other similar business.

Typically this information is only collected by large merchants either through their  
20 own customer database or through market research.

### **PRIOR ART**

Methods and systems for building databases for marketing purposes are known in  
25 the art.

One form of system is described in US Patent No. 5,636,346. A method is described of creating a database or a modelled profile of information for customers of an advertiser. This database consists of subscriber names and address information  
30 and is compiled from actual cable system and telephone company billing records. The database is then licensed to data processing companies or their clients to be matched with their own customer databases. A target subscriber list is produced from subscribers in the modelled profile which are not already in the customer database, and these subscribers are targeted directly.

35

Another system is described in US Patent No. 5,305,196. A method is described for building a database for use in a retail store marketing program in which a customer's cheque is scanned to detect an account identification number. This  
5 unique identification number is then compared against a stored database of customer identification numbers maintained at that store. The database is then updated if necessary with additional identification criteria. A list of prospective customers of the retail store in a predetermined geographical area is obtained through conventional sources. The list of prospective customers is then compared  
10 with the list of regular customers and customers which appear in both lists are removed from the list of prospective customers. Advertising material may then be mailed directly to the remaining customers in the prospective customers list.

In the abovementioned prior art, the merchant is provided with little more than a  
15 list of customers toward which direct marketing may be focused. It would be particularly advantageous to provide the merchant with characteristics and other information about actual and prospective customers.

#### **OBJECT OF THE INVENTION**

20 An object of the present invention is to provide an improved method and system for compiling demographic data about customers.

#### **DISCLOSURE OF THE INVENTION**

25 Accordingly in one aspect the invention may be said to consist in a computer implemented method for compiling demographic data based on interactions between customers and merchants comprising the steps of storing in an interaction database interaction data representing interactions between customers and merchants, the  
30 interaction database comprising interaction data of interactions involving different merchants; storing in a demographics database demographic data representing existing and/or prospective customers of two or more merchants; updating the interaction database with interaction data obtained from interactions between customers and merchants; retrieving from the interaction and demographics  
35 databases data representing existing and/or prospective customers of one or more

merchants; and generating a report based on the data retrieved from the interaction and demographics databases.

5 In a further aspect the invention may be said to consist in a system for compiling demographic data, the system comprising a memory in which is maintained an interaction database of interaction data representing interactions between customers and merchants, the interaction database comprising interaction data of interactions involving different merchants; a memory in which is maintained a demographics database of demographics data representing existing and/or  
10 prospective customers of two or more merchants; updating means arranged to update the interaction database with interaction data obtained from interactions between customers and merchants; retrieving means arranged to retrieve from the interaction and demographics databases data representing existing and/or  
15 arranged to generate a report based on the data retrieved from the interaction and demographics databases.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

20 A preferred embodiment of the method and system will now be described with reference to the accompanying drawings in which:-

Fig. 1 shows a block diagram of the system of the invention;

25 Fig. 2 shows a block diagram of the system in a commercial transaction between a customer and merchant;

Fig. 3 shows a block diagram of the system in a communication between a customer and merchant;

30

Figure 4 shows the database schema of the invention;

Figure 5 illustrates a typical database entry;

35

(followed by page 3A)

54455 WGN

3A

Figure 6 shows the typical characteristics of a group of customers;

Figure 7 illustrates a typical analysis of customers by country;

5 Figure 8 shows further characteristics of a typical group of customers;

Figure 9 illustrates a geographical density map;

Figure 10 shows a typical customer value graph;

10

Figure 6 shows an example of a report which may be produced for the merchant 16 illustrating general characteristics of Flowers R Us customers. For example the customers are likely to have qualifications and not likely to be unemployed. Characteristics such as these are available to the computer 3 from database 4 or  
5 from other sources and so it is possible to determine that Flowers R Us customers have these characteristics.

As shown in Figure 7, most of Flowers R Us customers, namely 87.2%, live in New Zealand. This gives the merchant 16 ideas about where to focus its advertising.  
10 The nature of this business means that smaller proportions of customer are resident in other countries, although this will not necessarily be the case for other types of business, for example in the travel booking and reservations industry.

Figure 8 shows a further example of characteristics of customers. For simplicity,  
15 customers are placed in one of 14 customer types, for example "educated money" or "single and separate". It is possible to estimate from the information in the computer 3 that 8.25% of New Zealanders are of the type "educated money", and that 5.51% are of the type "single and separate". Based on geographical data about its customers, it may be determined that 11.53% of the population living in the  
20 same region as merchant 16 are of type "educated money" and 7.91% are of type "single and separate". Based on transaction data it is possible to work out that 14.63% of Flowers R Us customers are of type "educated money". Furthermore, it is also possible to estimate the proportion of Flowers R Us "educated money" customers to those "educated money" types living in the same region. For example  
25 14.63% of Flowers R Us customers are of type "educated money" and 11.53% "educated money" types live in the same region. The proportion is 126.89%.

The invention allows the production of detailed geographical density maps as shown in Figure 9. In the example shown, all the customers of merchant 16 have been  
30 identified. The computer 3 has geographical data about these customers, and this data may be presented as a density map. This map shows the areas of the country in which Flowers R Us customers live, and would provide a focus for regional or localised advertising.

**CLAIMS:**

1. A computer implemented method for compiling demographic data based on interactions between customers and merchants comprising the steps of:

5 storing in an interaction database interaction data representing interactions between customers and merchants, the interaction database comprising interaction data of interactions involving different merchants;

storing in a demographics database demographic data representing existing and/or prospective customers of two or more merchants;

10 updating the interaction database with interaction data obtained from interactions between customers and merchants;

retrieving from the interaction and demographics databases data representing existing and/or prospective customers of one or more merchants; and

generating a report based on the data retrieved from the interaction and demographics databases.

15 2. A computer implemented method as claimed in claim 1 wherein the interaction database and the demographics database are maintained as separate databases.

20 3. A computer implemented method as claimed in claim 1 wherein the interaction database and the demographics database are maintained as a single database.

4. A computer implemented method as claimed in any one of the preceding claims wherein the interaction data includes a customer identifier and a merchant identifier.

25 5. A computer implemented method as claimed in any one of the preceding claims wherein the interaction data includes date and/or time data.

6. A computer implemented method as claimed in any one of the preceding claims wherein one or more interactions has a monetary value, and the interaction data obtained from the interaction includes the monetary value.

30 7. A computer implemented method as claimed in any one of the preceding claims wherein the interactions stored in the interaction database comprise commercial transactions between customers and merchants.

8. A computer implemented method as claimed in claim 7 wherein the customer identifier and the merchant identifier comprise an account number of the customer identifier or merchant identifier, the customer identifier and merchant identifier being obtained by one or more financial institutions from the commercial transactions.

9. A computer implemented method as claimed in any one of claims 1 to 6 wherein the interactions stored in the interaction database comprise communications between customers and merchants provided by one or more telecommunications service providers.

10. A computer implemented method as claimed in claim 9 wherein the customer identifier and merchant identifier comprise telephone numbers, the customer identifier and merchant identifier being obtained by the telecommunications service providers.

11. A computer implemented method as claimed in any one of claims 1 to 6 wherein the interactions stored in the interaction database comprise data network communications between customers and merchant, provided by one or more data network service providers.

12. A computer implemented method as claimed in claim 11 wherein the customer identifier and the merchant identifier comprise data network addresses, the customer identifier and the merchant identifier being obtained by the data network service providers.

13. A computer implemented method as claimed in any one of the preceding claims wherein the report is based on census data in addition to data retrieved from the interaction and demographics databases.

14. A computer implemented method as claimed in one of the preceding claims wherein the report includes demographic data representing the customers of a merchant.

15. A computer implemented method as claimed in any one of the preceding claims wherein the report includes demographic data representing the customers of two or more merchants.

16. A system for compiling demographic data, the system comprising:

a memory in which is maintained an interaction database of interaction data representing interactions between customers and merchants, the interaction database comprising interaction data of interactions involving different merchants;

5 a memory in which is maintained a demographics database of demographics data representing existing and/or prospective customers of two or more merchants;

updating means arranged to update the interaction database with interaction data obtained from interactions between customers and merchants;

10 retrieving means arranged to retrieve from the interaction and demographics databases data representing existing and/or prospective customers of one or more merchants; and

report generating means arranged to generate a report based on the data retrieved from the interaction and demographics databases.

15 17. A system as claimed in claim 16 wherein the interaction database and the demographics database are maintained as separate databases.

18. A system as claimed in claim 16 wherein the interaction database and the demographics database are maintained as a single database.

20

19. A system as claimed in claim any one of claims 16 to 18 wherein the interaction data stored in the interaction data stored in the interaction database includes a customer identifier and a merchant identifier.

25 20. A system as claimed in any one of claims 16 to 19 wherein the interaction data includes date and/or time data.

21. A system as claimed in any one of claims 16 to 20 wherein one or more interactions has a monetary value, and the interaction data obtained from the  
30 interactions includes the monetary value.

22. A system as claimed in any one of claims 16 to 21 wherein the interactions stored in the interaction database comprise commercial transactions between customers and merchants.

35

23. A system as claimed in claim 22 wherein the customer identifier and the merchant identifier comprise an account number of the customer identifier or merchant identifier, the customer identifier and merchant identifier being obtained by one or more financial institutions from the commercial transactions.

5

24. A system as claimed in any one of claims 16 to 21 wherein the interactions stored in the interaction database comprise communications between customers and merchants provided by one or more telecommunications service providers.

10

25. A system as claimed in claim 24 wherein the customer identifier and merchant identifier comprise telephone numbers, the customer identifier and merchant identifier being obtained by the telecommunications service providers.

15

26. A system as claimed in any one of claims 16 to 21 wherein the interactions stored in the interaction database comprise data network communications between customers and merchants provided by one or more data network service providers.

20

27. A system as claimed in claim 26 wherein the customer identifier and the merchant identifier comprise data network addresses, the customer identifier and the merchant identifier being obtained by the data network service providers.

25

28. A system as claimed in any one of claims 16 to 27 wherein the report generating means is arranged to generate a report based on census data in addition to data retrieved from the interaction and demographics databases.

29. A system as claimed in any one of claims 16 to 28 wherein the report generating means is arranged to generate a report based on data including demographic data representing the customers of a merchant.

30

30. A system as claimed in any one of claims 16 to 29 wherein the report generating means is arranged to generate a report based on data including demographic data representing the customers of two or more merchants.

3/12

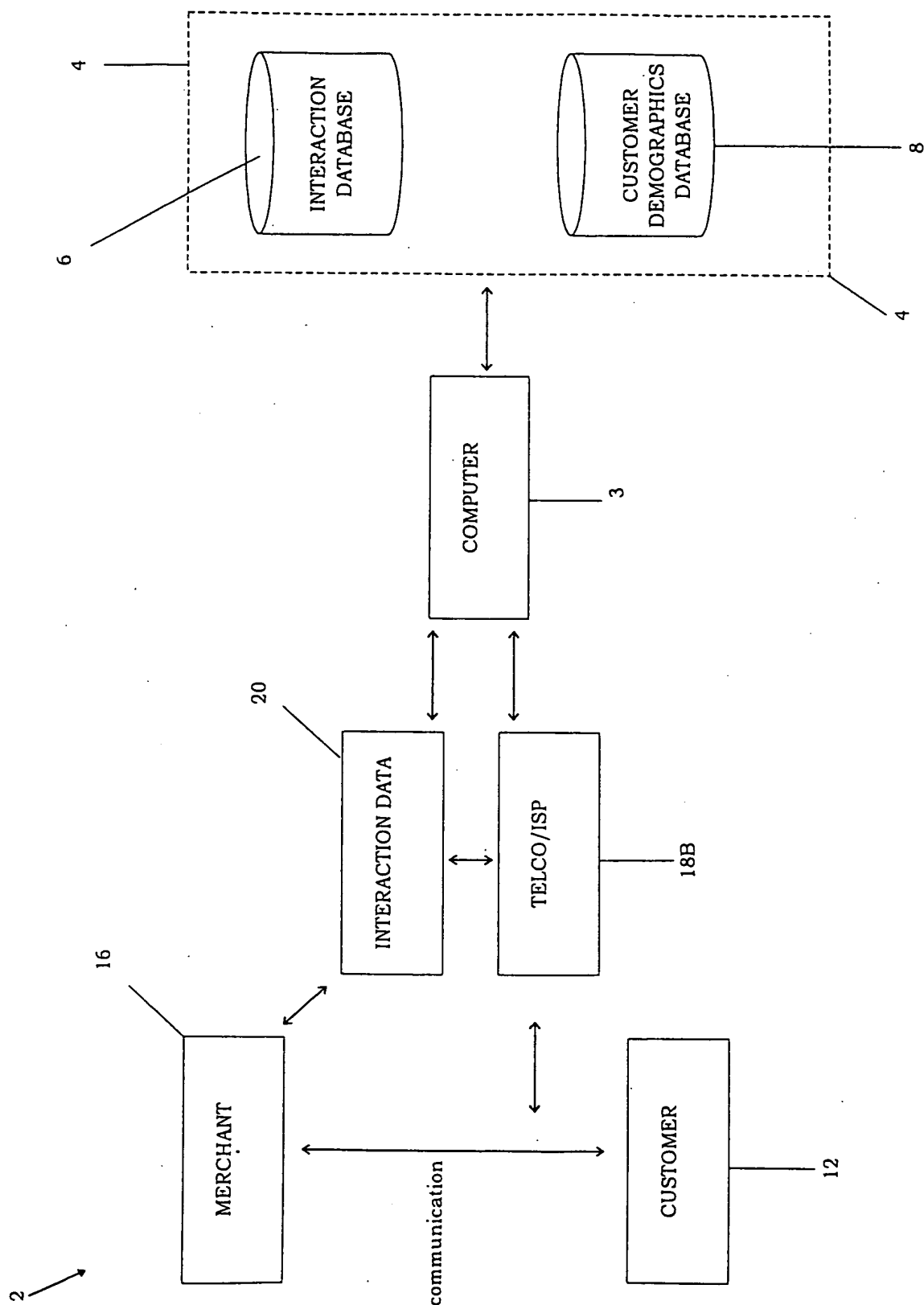
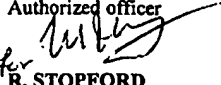


Figure 3

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/NZ 98/00103

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>																						
Int Cl <sup>6</sup> : G06F 17/30																						
According to International Patent Classification (IPC) or to both national classification and IPC																						
<b>B. FIELDS SEARCHED</b>																						
Minimum documentation searched (classification system followed by classification symbols) G06F 17/30																						
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched																						
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT. USPTO																						
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>																						
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																				
X	WO 97/22074 A1 (CYBERGOLD INC.) 19 June 1997 Whole document	1-13																				
X	WO 97/15023 A1 (CITIBANK N.A.) 24 April 1997 Whole document	1-13																				
X	WO 96/41288 A1 (E-SYSTEMS, INC.) 19 December 1996 Whole document	1-13																				
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex																						
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A"</td> <td>document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T"</td> <td>later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E"</td> <td>earlier application or patent but published on or after the international filing date</td> <td>"X"</td> <td>document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L"</td> <td>document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y"</td> <td>document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O"</td> <td>document referring to an oral disclosure, use, exhibition or other means</td> <td>"&amp;"</td> <td>document member of the same patent family</td> </tr> <tr> <td>"P"</td> <td>document published prior to the international filing date but later than the priority date claimed</td> <td></td> <td></td> </tr> </table>			"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P"	document published prior to the international filing date but later than the priority date claimed		
"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention																			
"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone																			
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art																			
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family																			
"P"	document published prior to the international filing date but later than the priority date claimed																					
Date of the actual completion of the international search 18 December 1998		Date of mailing of the international search report 24 DEC 1998																				
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No.: (02) 6285 3929		Authorized officer  R. STOPFORD Telephone No.: (02) 6283 2177																				

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/NZ 98/00103

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	AU 55282/94 A1 (MOORE BUSINESS FORMS, INC.) 1 September 1994 Whole document	1-13

# INTERNATIONAL SEARCH REPORT

## Information on patent family members

International application No.  
**PCT/NZ 98/00103**

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
WO	9722074	AU	14153/97	CA	2240314	US	5794210
WO	9715023	AU	75160/96	CA	2234026	EP	856178
WO	9641288	AU	62525/96				

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 23348 GWM/MDA	<b>FOR FURTHER ACTION</b>	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International application No. PCT/NZ 98/00103	International filing date ( <i>day/month/year</i> ) 16 July 1998	Priority Date ( <i>day/month/year</i> ) 16 July 1997
International Patent Classification (IPC) or national classification and IPC  Int. Cl. <sup>6</sup> G06F 17/30		
Applicant O'CONNOR, Paul Michael		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.  
☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  
  
 These annexes consist of a total of 10 sheet(s).

3. This report contains indications relating to the following items:

- |      |                                     |   |
|------|-------------------------------------|---|
| I    | <input checked="" type="checkbox"/> | Basis of the report   |
| II   | <input type="checkbox"/>            | Priority  |
| III  | <input type="checkbox"/>            | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| IV   | <input type="checkbox"/>            | Lack of unity of invention  |
| V    | <input checked="" type="checkbox"/> | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| VI   | <input type="checkbox"/>            | Certain documents cited   |
| VII  | <input type="checkbox"/>            | Certain defects in the international application  |
| VIII | <input type="checkbox"/>            | Certain observations on the international application   |

Date of submission of the demand 1 February 1999	Date of completion of the report 12 April 1999
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No. (02) 6285 3929	Authorized Officer  <b>R. STOPFORD</b>  Telephone No. (02) 6283 2177

**I. Basis of the report****1. With regard to the elements of the international application:\***

- ☐ the international application as originally filed.
- ☒ the description, pages 4-11, 13, as originally filed,  
pages , filed with the demand,  
pages 1, 2, 3, 3a, 12, filed with the letter of 24 March 1999.
- ☒ the claims, pages , as originally filed,  
pages , as amended (together with any statement) under Article 19,  
pages , filed with the demand,  
pages 14-17, filed with the letter of 24 March 1999.
- ☒ the drawings, pages 1, 2, 4-12, as originally filed,  
pages , filed with the demand,  
pages 3, filed with the letter of 24 March 1999.
- ☐ the sequence listing part of the description:  
pages , as originally filed  
pages , filed with the demand  
pages , filed with the letter of

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:**

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

**4. ☐ The amendments have resulted in the cancellation of:**

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims 1-30	YES
	Claims	NO
Inventive step (IS)	Claims 1-30	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-30	YES
	Claims	NO

**2. Citations and explanations (Rule 70.7)**

WO 97/15023 A1 (CITIBANK N.A.) 24 April 1997

A sales process support system which includes a central database that receives comprehensive information from a variety of internal and external feeds, and standardizes and households the information in the three-level hierarchy (households, customers, and accounts) for use by a financial institution. The comprehensive information stored on the central database is accessed through workstations to generate lists of sales leads for marketing campaigns. A database engine is provided for generating logical access paths for accessing data on the central database to increase speed and efficiency of the central database. The system distributes sales leads electronically to branch networks, where the sales leads are used to target customers for marketing campaigns. The central database is accessed by workstations of a central customer information system for profiling customers, enhancing customer relationships with the financial institution, and electronically tracking sales and service performance during marketing campaigns. The central database may include information concerning existing customer financial information, information from outside sources, and demographic information about existing and potential customers. A central customer information system ("CCIS") preferably includes a relationship profile component, an account management component, a lead management system, or a sales tracking and reporting (management information system or "MIS") component. Searches of households can be limited to their organization level, geographic location, or other factor. A user may specify a product code at the service type level, such that a query can be answered in one step by using flags and summary variables at the household level.

Abstract, page 8 lines 10/16, page 12 lines 2/6, page 13 lines ¼, page 15 lines 1/3, page 34 lines 219/23, page 42 lines 31/33,

AU 55282/94 A1 (MOORE BUSINESS FORMS, INC.) 1 September 1994

Providing a retailer or a retail chain with the ability to process transactional information involving large numbers of customers and customer products by gathering information that uniquely identifies each product. Product, customer and transactional information is maintained in a relational database. Targeting of specific customers with marketing and other promotional literature is based on customer buying habits, needs, demographics, etc. Specific household demographic information is recorded. Consumer behaviour reports are generated, these show consumer buying behaviour across time intervals, store sites, product clusters, departments, and within consumer clusters.

Page 5, page 18, page 32

continued

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of : BOX V

WO 97/22074 A1 (CYBERGOLD INC.) 19 June 1997

According to the present invention, a centralized record keeping system receives record documents from one of a plurality of independent service providers. The system automatically links the record to a person who is the subject of the record by automatically extracting from the record demographic data on the subject and matching it to demographic data on the subject maintained in a database. Unique subject identifiers are not preassigned by the central record keeping system or used for linking. The records are stored in a repository and a list of linked records is maintained for each person. All records for a particular subject are then available for retrieval by querying the database of demographic data.

Page 4 lines 1/10.

WO 96/41288 A1 (E-SYSTEMS, INC.) 19 December 1996

A system provides for the immediate payment to computer and other users for paying attention to an advertisement or other "negatively priced" information distributed over a computer network such as the Internet. Called Attention Brokerage, this is the business of brokering the buying and selling of the "attention" of users. A further invention, Orthogonal Sponsorship, allows advertisers to detach their messages from program content and explicitly target their audience. Targeting users may be provided by reference to a data base of digitally stored demographic profiles of potential users. Information can be routed to users based on demographics, and software agents can be used to actively seek out users on a digital network. The demographic profiles can be constructed through interest questionnaires that the consumer completes when subscribing to the service, and also through electronic tracking of his/her usage of the service (and other habits). Thus, the profiles can be dynamic, evolving with the customer's transaction history. A customer can choose to exclude any transaction (e.g., viewing of certain material or purchasing of certain products) from his profile. Profiles can also be interactive in that a customer may edit his profile at any time to add or delete interest features, and to delete any transaction records.

Abstract, page 11 lines 1/13

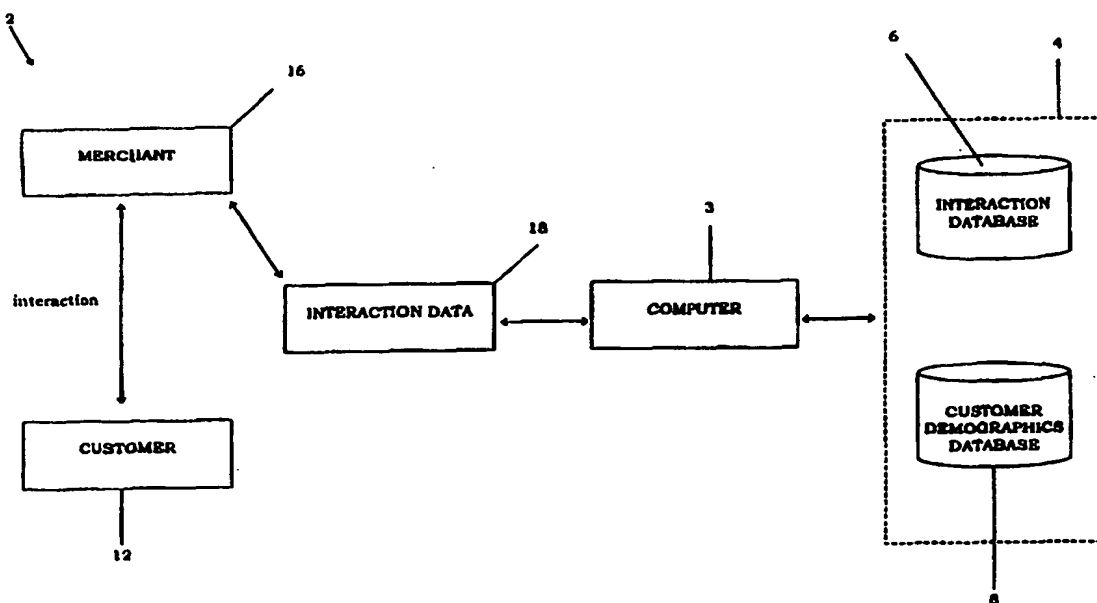
No citation or combination of citations disclose all the features found in the claims, in particular, databases containing interaction information between customers and multiple merchants.

Consequently the claims are novel, and are seen as having an inventive step and are seen as industrially applicable.

**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>G06F 17/30</b>		<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 99/04350</b>
			<b>(43) International Publication Date:</b> 28 January 1999 (28.01.99)
<b>(21) International Application Number:</b> PCT/NZ98/00103 <b>(22) International Filing Date:</b> 16 July 1998 (16.07.98) <b>(30) Priority Data:</b> 328355 16 July 1997 (16.07.97) NZ <b>(71)(72) Applicant and Inventor:</b> O'CONNOR, Paul, Michael [NZ/NZ]; 205 Wakefield Street, Wellington (NZ). <b>(74) Agents:</b> WEST-WALKER, Gregory, James et al.; Russell McVeagh West-Walker, The Todd Building, Level 7, 171-177 Lambton Quay, Wellington 6001 (NZ).			<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

**(54) Title:** METHOD AND SYSTEM FOR COMPILING DEMOGRAPHIC DATA**(57) Abstract**

A computer-implemented method and system for compiling demographic data is provided. This comprises maintaining in a computer, having a memory, a database of demographic data about existing and/or prospective customers, and interactions between customers and merchants; updating the database with data about new interactions between customers and merchants; retrieving from the database demographic data about existing and/or prospective customers; and generating a report on demographic data about existing and/or prospective customers.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakistan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

**METHOD AND SYSTEM FOR COMPILING DEMOGRAPHIC DATA****BACKGROUND TO THE INVENTION**

5 This invention relates to a method and system for compiling demographic data.

Merchants are currently left in the difficult situation of having little or no idea of customers' characteristics. Their advertising and promotions are at best aimed at a hunch of what will attract existing and prospective customers to purchase from  
10 them. The merchants do not details of demographic characteristics of their customers, for example geographic location, professional status, family size, etc. They do not know what other merchants their customers also purchase products from, and the merchants do not know what value to place on individual customers.

15 The same problem may also be experienced with other forms of interactions between merchants and customers involving, for example, call centres, help desk enquiry services and other similar business.

Typically this information is only collected by large merchants either through their  
20 own customer database or through market research.

**PRIOR ART**

Methods and systems for building databases for marketing purposes are known in  
25 the art.

One form of system is described in US Patent No. 5,636,346. A method is described of creating a database or a modelled profile of information for customers of an advertiser. This database consists of subscriber names and address information  
30 and is compiled from actual cable system and telephone company billing records. The database is then licensed to data processing companies or their clients to be matched with their own customer databases. A target subscriber list is produced from subscribers in the modelled profile which are not already in the customer database, and these subscribers are targeted directly.

35

Another system is described in US Patent No. 5,305,196. A method is described for building a database for use in a retail store marketing program in which a customer's cheque is scanned to detect an account identification number. This unique identification number is then compared against a stored database of customer identification numbers maintained at that store. The database is then updated if necessary with additional identification criteria. A list of prospective customers of the retail store in a predetermined geographical area is obtained through conventional sources. The list of prospective customers is then compared with the list of regular customers and customers which appear in both lists are removed from the list of prospective customers. Advertising material may then be mailed directly to the remaining customers in the prospective customers list.

In the abovementioned prior art, the merchant is provided with little more than a list of customers toward which direct marketing may be focused. It would be particularly advantageous to provide the merchant with characteristics and other information about actual and prospective customers.

#### **OBJECT OF THE INVENTION**

An object of the present invention is to provide an improved method and system for compiling demographic data about customers.

#### **DISCLOSURE OF THE INVENTION**

Accordingly in one aspect the invention may be said to consist in a computer implemented method for compiling demographic data comprising the steps of maintaining in a computer having a memory a database of demographic data about existing and/or prospective customers, and interactions between customers and merchants; updating the database with data about new interactions between customers and merchants; retrieving from the database demographic data about existing and/or prospective customers; and generating a report on demographic data about existing and/or prospective customers.

In a further aspect the invention may be said to consist in a system for compiling demographic data, the system comprising a computer having a memory in which is

stored a database of demographic data about existing and/or prospective customers, and interactions between customers and merchants; means arranged to update the database with data about new interactions between customers and merchants; means arranged to retrieve from the database demographic data about existing and/or prospective customers; and report generating means for generating a report on demographic data about existing and/or prospective customers.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

10 A preferred embodiment of the method and system will now be described with reference to the accompanying drawings in which:-

Fig. 1 shows a block diagram of the system of the invention;

15 Fig. 2 shows a block diagram of the system in a commercial transaction between a customer and merchant;

Fig. 3 shows a block diagram of the system in a communication between a customer and merchant;

20

Figure 4 shows the database schema of the invention;

Figure 5 illustrates a typical database entry;

25 Figure 6 shows the typical characteristics of a group of customers;

Figure 7 illustrates a typical analysis of customers by country;

Figure 8 shows further characteristics of a typical group of customers;

30

Figure 9 illustrates a geographical density map;

Figure 10 shows a typical customer value graph;

Figure 11 shows the merchants with which a typical merchant shares its customers; and

Figure 12 illustrates a table of repeat customers.

5

#### **DISCLOSURE OF THE PREFERRED EMBODIMENTS**

10 In the preferred form of the invention, as shown in Figure 1, the system 2 comprises a computer 3 having a data processor and memory, operating under the control of application software. The computer 2 communicates with at least one stored database 4. The database 4 may include an interaction database 6 and customer demographics database 8. It will be appreciated that the interaction database 6 and demographics database may be implemented as separate databases or as a single  
15 database. For simplicity the invention will be described with reference to database 4. The customer demographics database 8 may store data about existing customers and/or prospective customers. It will be appreciated that references to customers in the specification and claims may additionally include prospective customers.

20 Demographic characteristics of customers as used in the specification and appended claims may include geographic location, professional status, family size, age, gender, marital status, ethnicity, education and vocation. Also included within the scope of demographic characteristics may be psychodynamic or psychographic characteristics, and where the customer is a commercial business, demographic  
25 data could include the number of employees and the industry code of the business.

Database 4 may be stored in the memory of computer 3. Alternatively database 4 may be stored externally on one or more separate servers and accessed by dedicated and dial-up telecommunications facilities using e-mail, electronic data  
30 interchange (EDI) and/or communications via Internet web sites, or stored on CD-ROMS, floppy disks, tape drives, or other storage media. Alternatively the database 4 may be accessed with terminal emulation or Telnet facilities.

The data in database 4 may be contributed by a bank, financial institution, telecommunications or internet service provider, or some other third party, for example an entity operating a loyalty programme.

5 As shown in Fig. 1, a customer 12 interacts with a merchant 16 as shown in Fig. 1. Typically merchant 16 operates in a commercial premises or store from which customer 12 purchases goods or services. Alternatively merchant 16 may operate from strategically placed machines, for example vending machines, parking meters, laundry machines and transportation ticketing machines. Merchant 16 may also  
10 operate a mail order catalogue service, direct market goods or services, or network market through a hierarchy of distributors and resellers. As is becoming increasingly common, merchant 16 may alternatively operate from a website or other electronic medium.

15 As a further alternative merchant 16 may operate a help desk, call centre, or some other business in which customer 12 interacts with merchant 16 by telephone, facsimile, email, web browsing or other form of communication. It will be appreciated that the nature of business of merchant 16 includes a wide range of commercial activities.

20 Customer 12 may be a purchaser of goods or services from merchant 16. If merchant 16 operates a help desk or call centre, customer 12 may be a user of this service. Customer 12 may be a commercial or residential entity.

25 It will be appreciated that an interaction between customer 12 and merchant 16 may be initiated by either the customer 12 or by the merchant 16. As customer 16 interacts with merchant 16, the interaction generates interaction data 18 which may be stored in interaction database 6 as will be further described.

30 The invention will be first be described with reference to Fig. 2 in which the interaction comprises a retail transaction. For security and convenience it is becoming increasingly common for customer 12 to use a payment other than cash. One example is a credit card, in which a sales person either magnetically reads or makes an imprint of the card, calls a processing centre via a dial-up modem to  
35 obtain authorisation and verifies the cardholder's signature to prevent fraud.

Alternatively the customer 12 may provide the account number and expiry date of the credit card to a merchant 16 who is geographically separated from customer 12.

Other alternatives to cash include cheques, electronic funds transfer (EFT-POS) cards, pre-paid money cards, credit, debit or charge cards, and integrated circuit or smart cards.

If a payment method other than cash is used then certain customer information is transferred from the customer 12 to the merchant 16. For example the customer information would include details of the customer's financial account to be debited.

10 The merchant 16 transfers payment to the merchant's own financial institution 24 or other financial institution. Also sent to the financial institution 24 is transaction information which includes at least a merchant identifier, a customer identifier, a transaction amount and the date and time of the transaction.

15 The transaction between customer 12 and merchant 16 generates interaction data 18A. The interaction data 18A includes a merchant identifier. This merchant identifier may comprise the bank account number of merchant 16, or some other identifier. It will be appreciated that interaction data 18A could include further information about the merchant, for example geographic location. This information  
20 could be supplied by the merchant 16 or financial institution 24, and could be stored with the interaction data 18A or in database 4.

Interaction data 18A also includes a customer identifier. This customer identifier may comprise the bank account number of customer 16, or some other identifier.  
25 Again, interaction data 18A could include demographic data about the customer, for example geographic location, professional status, family size, etc. Also included, for example, could be psychodynamic or psychographic data. Where the customer is a commercial business, interaction data 18A could include the number of employees and the industry code of the business. Information about the customer could be  
30 supplied by the customer 12, the merchant 16, financial institution 24, and could be stored with the interaction data 18A or in database 4.

Interaction data 18A could also include, for example, the monetary value of the interaction, a goods/services identifier, and/or the date and time of the interaction.

As shown in Fig. 3, the interaction may be in the form of a communication between a customer 12 and a merchant 16. Merchant 16 may operate a help desk, call centre, or some other business in which customer 12 interacts with merchant 16. If the customer 12 interacts with merchant 16 by telephone or facsimile, the identities of both the customer 12 and merchant 16 are known by the telecommunication service provider (telco) 20 used to make the communication. A customer identifier and merchant identifier could be either generated or at least known to the telco 20 and could be supplied by the telco 20. Alternatively customer identifier and merchant identifier could be supplied by merchant 16 or customer 12. Merchant identifier and customer identifier could be the telephone/facsimile number of the merchant 16 and customer 12 respectively, or could be some other identifier.

Further information about merchant 16 and customer 12 could be included as discussed above with reference to Fig. 2. For example, interaction data 18B could include geographic information about the merchant 16, demographic, psychodynamic or psychographic data about the customer 12, and where the customer 12 is a business, details of the number of employees and industry code.

As discussed above with reference to Fig. 2, interaction data 18B could also include, for example, the monetary value of the interaction (if any), a goods/services identifier (if applicable), and/or the date and time of the interaction. Interaction data 18B could also include the duration of the communication.

Customer 12 may also interact with merchant 16 electronically. For example, customer 12 may send a message by email to merchant 16. Alternatively, merchant 16 may operate a web site which customer 12 may visit with a web browser. In this situation the identities of the customer 12 and merchant 16 are known by the internet service provider (ISP) 20 used to make the communication.

A customer identifier and merchant identifier could be either generated or at least known to the ISP 20 and could be supplied by the ISP 20. Alternatively customer identifier and merchant identifier could be supplied by merchant 16 or customer 12. Merchant identifier and customer identifier could be the internet address of the merchant 16 and customer 12 respectively, or could be some other identifier.

As discussed above, further information about merchant 16 and customer 12 could be included in interaction data 18B.

5 The merchant 16 may operate a loyalty programme, whereby a selected customer 12 is distinguished from other customers. Those customers who are members of the loyalty programme are often issued with identification cards. Interaction data 18, 18A, or 18B could include the fact the customer 12 is a member of the loyalty programme.

10

The invention will now be described in the context of a retail transaction. It will be appreciated that the scope of the invention is not limited to retail transactions and includes other forms of interaction as discussed above with reference to Figs. 1 to 3.

15 The computer 3 may have in its database 4 information about particular merchants, for example those merchants in a common industry. This information may include the name and address of the merchant 16 and the nature of the merchant's business. The information held by the computer 3 about a merchant 16 is shown in Figure 4 as merchant data 22. While not necessary, the merchant data 22 may be  
20 indexed by merchant identifier 24 to assist in processing.

The computer 3 also has information about individuals who may use the merchant 16. For example the computer 3 may have a record of the income, age, gender, marital status, ethnicity, education, telephone numbers, residential address and  
25 vocation of individuals. The residential address may be specifically defined, or may be an arbitrarily defined geographical area, mesh block, geocode or census area unit. Each individual may be a customer 12 of merchant 16. This information is shown in Figure 4 as customer data 26. Customer data 26 may be indexed by customer identifier 28.

30

As a customer 12 interacts with merchant 16, interaction data is stored as transaction data 30. An example is shown in Figure 4.

Each transaction can only have one merchant, while individual merchants can have  
35 more than one transaction. The relationship of the transaction data 30 to merchant

data 22 is therefore many-to-one. Similarly, each transaction can have only one customer, while individual customers can have more than one transaction. The relationship of the transaction data 30 to customer data 26 is therefore also many-to-one.

5

The computer 3 may have access to all information contained in merchant data 22, customer data 26 and transaction data 30. From this data it is possible to produce reports for a merchant 16 giving the merchant 16 detailed information about its customers 12. For example, it is possible to estimate the average annual salary of the national population. It is also possible to identify the customers 12 of merchant 16 based on the accumulated transaction data 30 and therefore estimate the average income of customers 12 of a particular merchant 16. Information such as this is very valuable to merchant 16 as it then knows where to focus marketing efforts. It is also possible to provide merchant 16 with other demographic characteristics of its customers 12 as discussed above.

10

15

In some circumstances a number of other parties may each transmit certain data to computer 3, so that merchant 16 can obtain further information about its customers 12.

20

Based on characteristics of customers 12, it is possible to provide merchant 16 with customer segmentation data. For example the merchant 16 may be provided with the proportion of its customers who are in a particular income range to assist in developing marketing strategies.

25

It is also possible to provide details of the customers 12 a particular merchant 16 shares with other merchants. The transaction data 30 includes a merchant identifier and a customer identifier. Based on this information the proportion and characteristics of customers 12 a merchant 16 shares with competing merchants can be determined. A merchant 16 may then have an idea of its market share and know the types of customers 12 on which to focus marketing initiatives. It is also possible to provide the merchant 16 information about the customers 12 the merchant 16 shares with merchants in other markets. This would allow, for example, a fast food retailer to assess the merits of joint advertising with a petrol station if the merchants share a large proportion of customers.

30

35

The transaction data 30 may also include temporal data, for example the date and time of transactions. It is therefore possible to identify the date and time different customer types are likely to purchase goods or services from merchant 16.

5

In a preferred form of the invention the computer 3 includes a stored database of customer locations, including residential addresses, post codes and telephone numbers. From this information it is possible to produce density maps of customer types of merchant 16 based on the geographical locations, post codes and/or  
10 telephone numbers of customers 12. The scale of these density maps may be local, regional, national or global.

Although not strictly necessary, in a further preferred form of the invention the computer 3 includes a stored database of transaction amounts of transactions  
15 between customers 12 and merchants 16 as shown in Figure 4. From this information the characteristics of a merchant's customers from which the merchant derives the most revenue, or most valued customers can be determined.

Where appropriate, the transaction details may also include a product identification  
20 code. This allows the quantity and characteristics of products purchased by customers 12 to be determined. For example, a merchant 16 who does not sell a particular product may be interested to know that a competitor is selling large quantities of the product. If the merchant 16 offered the same product for sale then customers may purchase products from merchant 16 instead of the competitor.

25

The product identification code is also useful in evaluating the response to the use of coupons. Generally, coupons are issued to existing customers or are distributed to a particular geographical region. Coupons generally offer a discount on subsequent purchases, or additional complimentary goods or services with  
30 subsequent purchases. Using the product identification code it is possible to determine the characteristics of customers who present coupons and the characteristics of customers who do not.

In addition to the above information, it also possible to obtain specific information  
35 on companies or industries. From the information in the computer 3, comparisons

may be made of characteristics of the customers 12 of a merchant 16 in one population with those of another population. This information would be valuable to a merchant 16 introducing a product into a new market who needs to know how well the product has been received in other countries.

5

As stated above the transaction data 30 may include temporal data. The reports may be generated periodically and changes in a merchant's customer base over time can be identified and reported. This use of temporal data is particularly useful in evaluating the success or otherwise of general promotional activity, for example the sale of goods or services at reduced prices.

10

The reports may be presented to the merchant 16 by paper, oral/visual presentation or electronically for example email or secured web access. In a preferred embodiment of the invention the merchant 16 may select which information it requires about its customer base.

15

In the preferred form of the invention demographic data 32 is produced from information held by the computer 3. However, other data sources may also be used, for example census data, customer databases, demographic information held by other parties, other customer transactions, product descriptions and merchant databases.

20

The system 2 may be tailored to satisfy confidentiality or privacy requirements. For example, details of individual customers may be omitted from merchant reports. Additionally, details of individual merchants may be omitted for reasons of commercial confidentiality.

25

As shown in Figure 5, a customer has purchased goods from the fictitious company Flowers R Us. The appropriate entries have been made in merchant data 22, customer data 26 and transaction data 30. A customer having the unique identifier CUST1, residing in Roseneath, Wellington, New Zealand has purchased flowers to the value of NZ\$35 from Flowers R Us, a merchant having the unique identifier MERC1. Based on a number of these transactions, it is possible to produce detailed and commercially useful reports for the merchant 16.

30

35

Figure 5 shows an example of a report which may be produced for the merchant 16 illustrating general characteristics of Flowers R Us customers. For example the customers are likely to have qualifications and not likely to be unemployed. Characteristics such as these are available to the computer 3 from database 4 or  
5 from other sources and so it is possible to determine that Flowers R Us customers have these characteristics.

As shown in Figure 6, Most of Flowers R Us customers, namely 87.2%, live in New Zealand. This gives the merchant 16 ideas about where to focus its advertising.  
10 The nature of this business means that smaller proportions of customer are resident in other countries, although this will not necessarily be the case for other types of business, for example in the travel booking and reservations industry.

Figure 7 shows a further example of characteristics of customers. For simplicity,  
15 customers are placed in one of 14 customer types, for example "educated money" or "single and separate". It is possible to estimate from the information in the computer 3 that 8.25% of New Zealanders are of the type "educated money", and that 5.51% are of the type "single and separate". Based on geographical data about its customers, it may be determined that 11.53% of the population living in the  
20 same region as merchant 16 are of type "educated money" and 7.91% are of type "single and separate". Based on transaction data it is possible to work out that 14.63% of Flowers R Us customers are of type "educated money". Furthermore, it is also possible to estimate the proportion of Flowers R Us "educated money" customers to those "educated money" types living in the same region. For example  
25 14.63% of Flowers R Us customers are of type "educated money" and 11.53% "educated money" types live in the same region. The proportion is 126.89%.

The invention allows the production of detailed geographical density maps as shown in Figure 9. In the example shown, all the customers of merchant 16 have been  
30 identified. The computer 3 has geographical data about these customers, and this data may be presented as a density map. This map shows the areas of the country in which Flowers R Us customers live, and would provide a focus for regional or localised advertising.

Figure 10 shows a customer value graph produced with the invention. As shown in the graph, 17% of Flowers R Us customers represent 48% of the merchant's transactions. It is also possible to work out from this information the value of these 17% of customers based on the value of the transactions.

5

As shown in Figure 11, it is possible to provide Flowers R Us with the proportion of customers it shares with other merchants. For example, 35.9% of Flowers R Us customers are also customers of Peter's Petrol Limited. The merchant 16 may consider joint advertising with Peter's Petrol Limited to reduce advertising expenditure, as the two merchants share a large customer base which would be reached by the advertising. It is also possible to provide Flowers R Us with the proportion of customers it shares with competitors.

10

A further report is illustrated in Figure 12, showing information of repeat purchases by customers. Of Flowers R Us customers, 34% have purchased goods or services once from Flowers R Us, 26% purchased twice, and so on. This information may also be combined with information about products and other information.

15

According to this invention, a method and system for compiling demographic data is provided. The method used allows a financial institution, third party, or merchant to compile demographic data easily, allowing merchants to understand their existing customers better and attract prospective customers.

20

**CLAIMS:**

1. A computer implemented method for compiling demographic data comprising the steps of:
  - maintaining in a computer having a memory a database of demographic data about existing and/or prospective customers, and interactions between customers and merchants;
  - updating the database with data about new interactions between customers and merchants;
  - retrieving from the database demographic data about existing and/or prospective customers; and
  - generating a report on demographic data about existing and/or prospective customers.
2. A computer implemented method as claimed in claim 1 further comprising the step of maintaining in the database geographic locations of existing and/or prospective customers.
3. A computer implemented method as claimed in claim 1 or claim 2 wherein the interaction between a merchant and a customer comprises a commercial transaction and the interaction data further comprises a transaction value.
4. A computer implemented method as claimed in any one of claims 1 to 3 wherein the interaction data further comprises a product/service identification code.
5. A computer implemented method as claimed in any one of the preceding claims further comprising the step of maintaining in the database census data.
6. A computer implemented method as claimed in any one of the preceding claims wherein the interaction data further comprises temporal data, the method further comprising the step of retrieving the temporal data to identify and display changes in the demographic data.
7. A computer when operated by a method according to any one of claims 1 to 6.
8. A system for compiling demographic data, the system comprising:

a computer having a memory in which is stored a database of demographic data about existing and/or prospective customers, and interactions between customers and merchants;

5 means arranged to update the database with data about new interactions between customers and merchants;

means arranged to retrieve from the database demographic data about existing and/or prospective customers; and

report generating means for generating a report on demographic data about existing and/or prospective customers.

10 9. A system as claimed in claim 8 wherein the stored database further comprises geographic locations of existing and/or prospective customers.

10. A system as claimed in claim 8 or claim 9 wherein the interaction between a merchant and a customer comprises a commercial transaction and the interaction data further comprises a transaction value.

15 11. A system as claimed in claim 10 wherein the interaction data further comprises a product/service identification code.

12. A system as claimed in any one of claims 8 to 11 wherein the stored database includes census data.

20 13. A system as claimed in any one of claims 8 to 12 wherein the interaction data further comprises temporal data and the report generating means is arranged to identify and display changes in the demographic data.

1/12

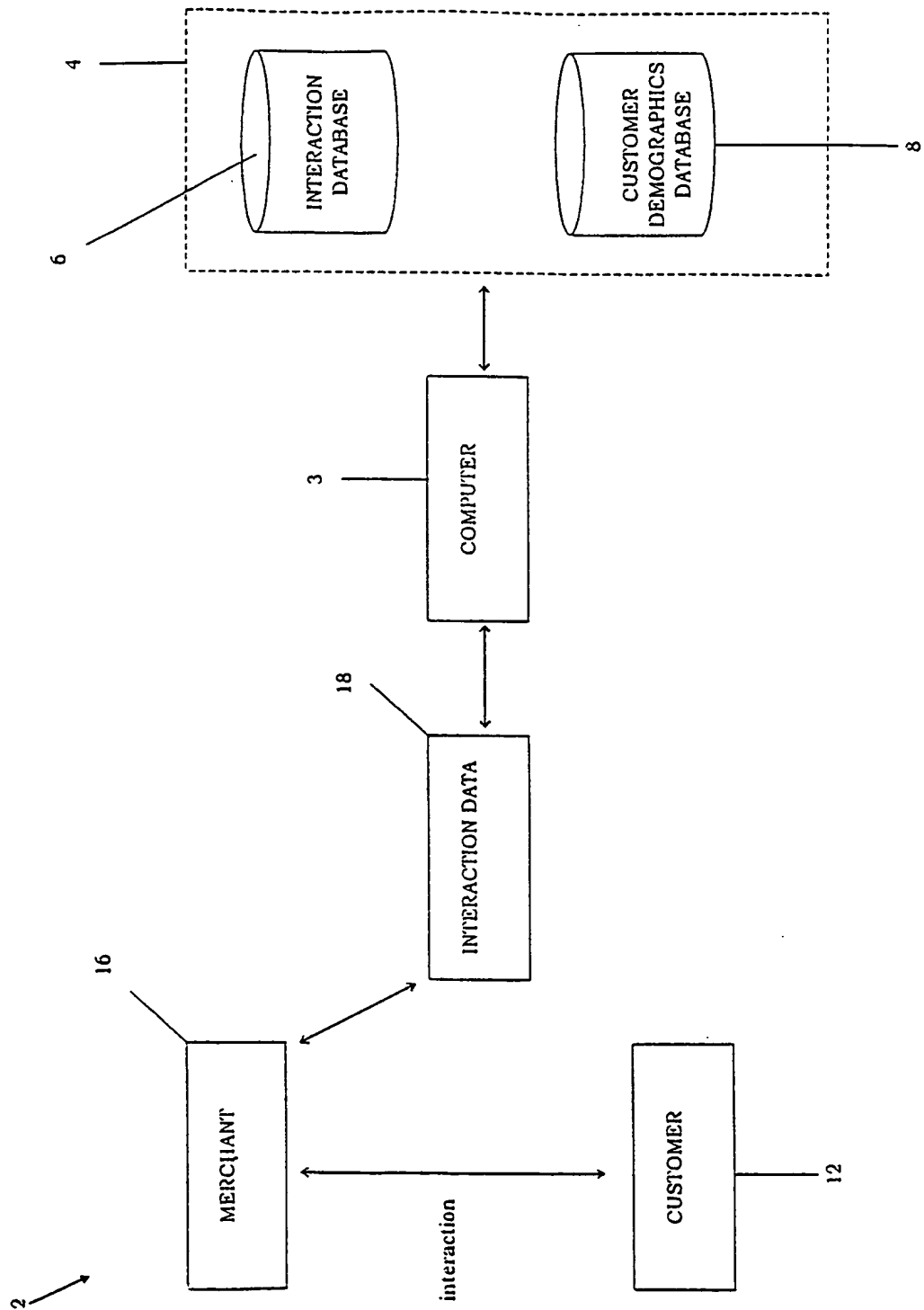


Figure 1

2/12

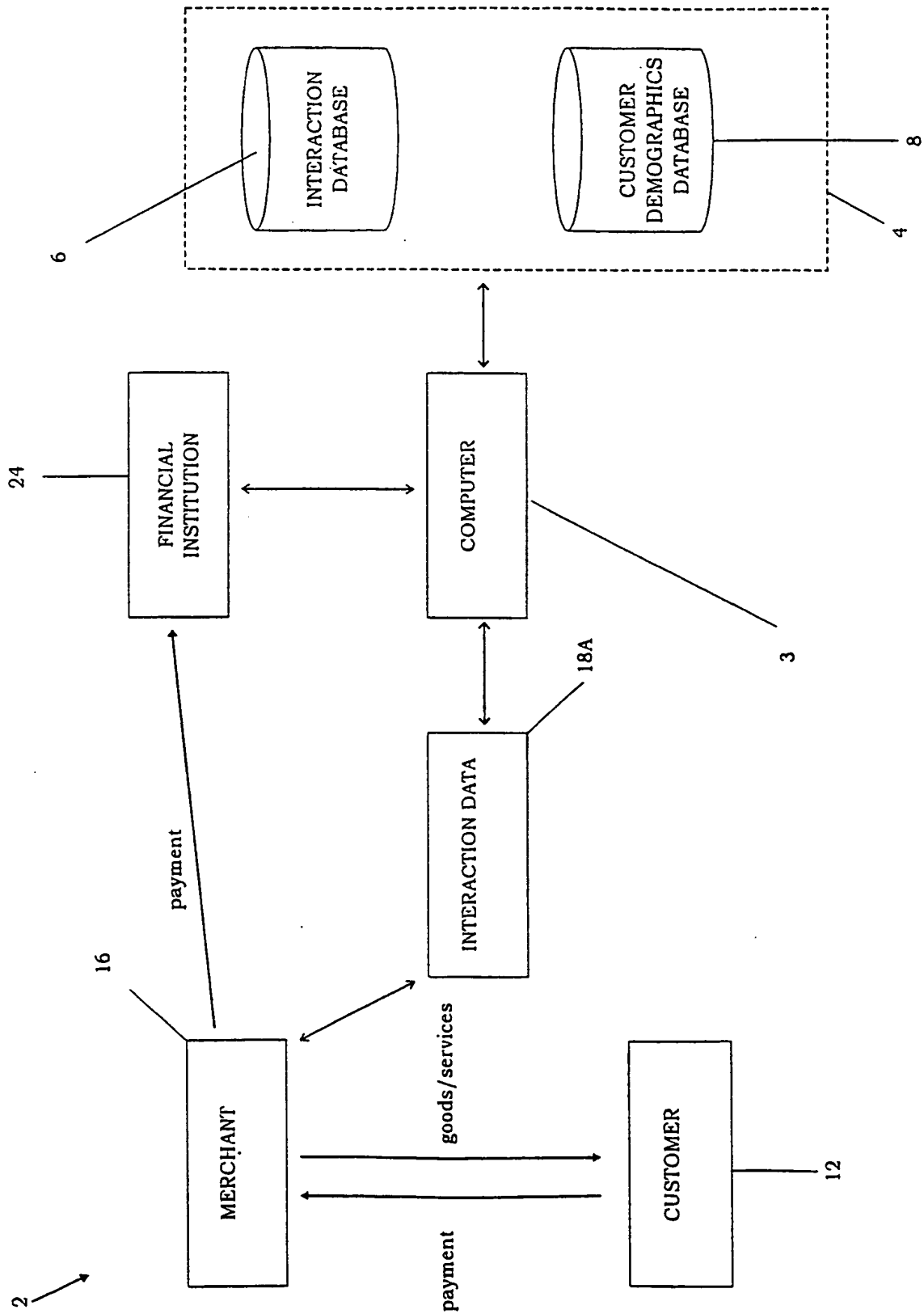


Figure 2

3/12

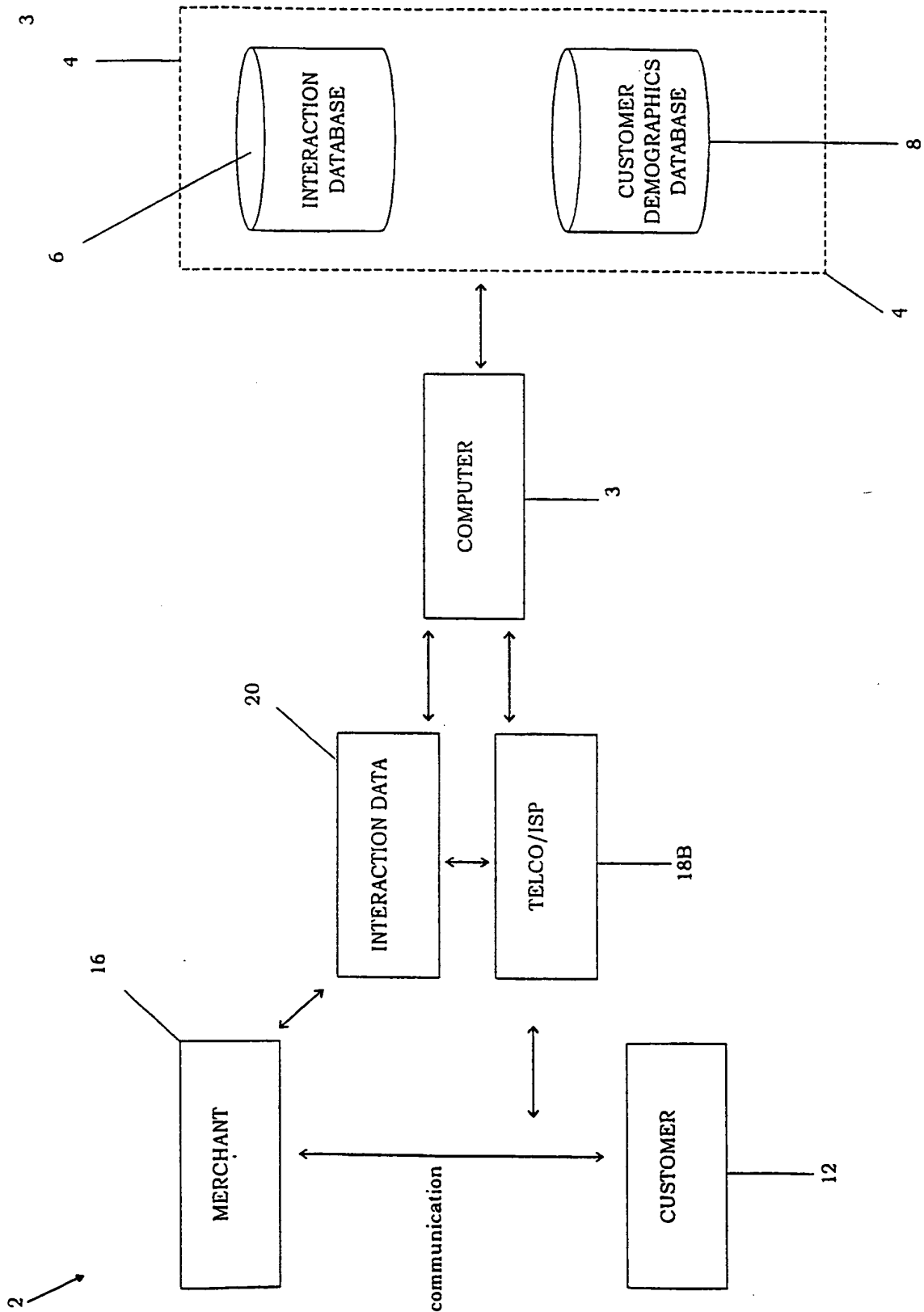


Figure 3

4/12

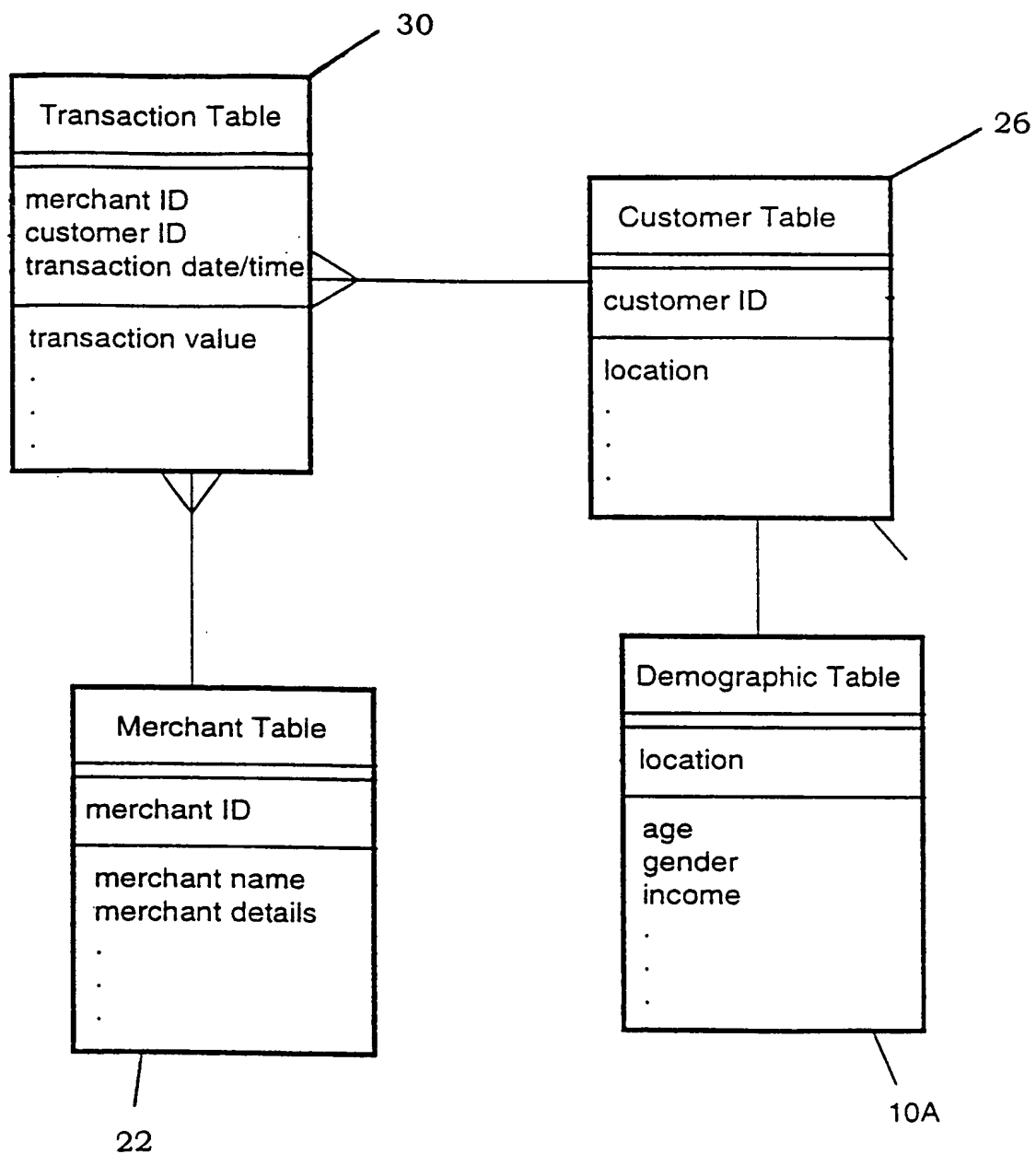


Figure 4

5/12

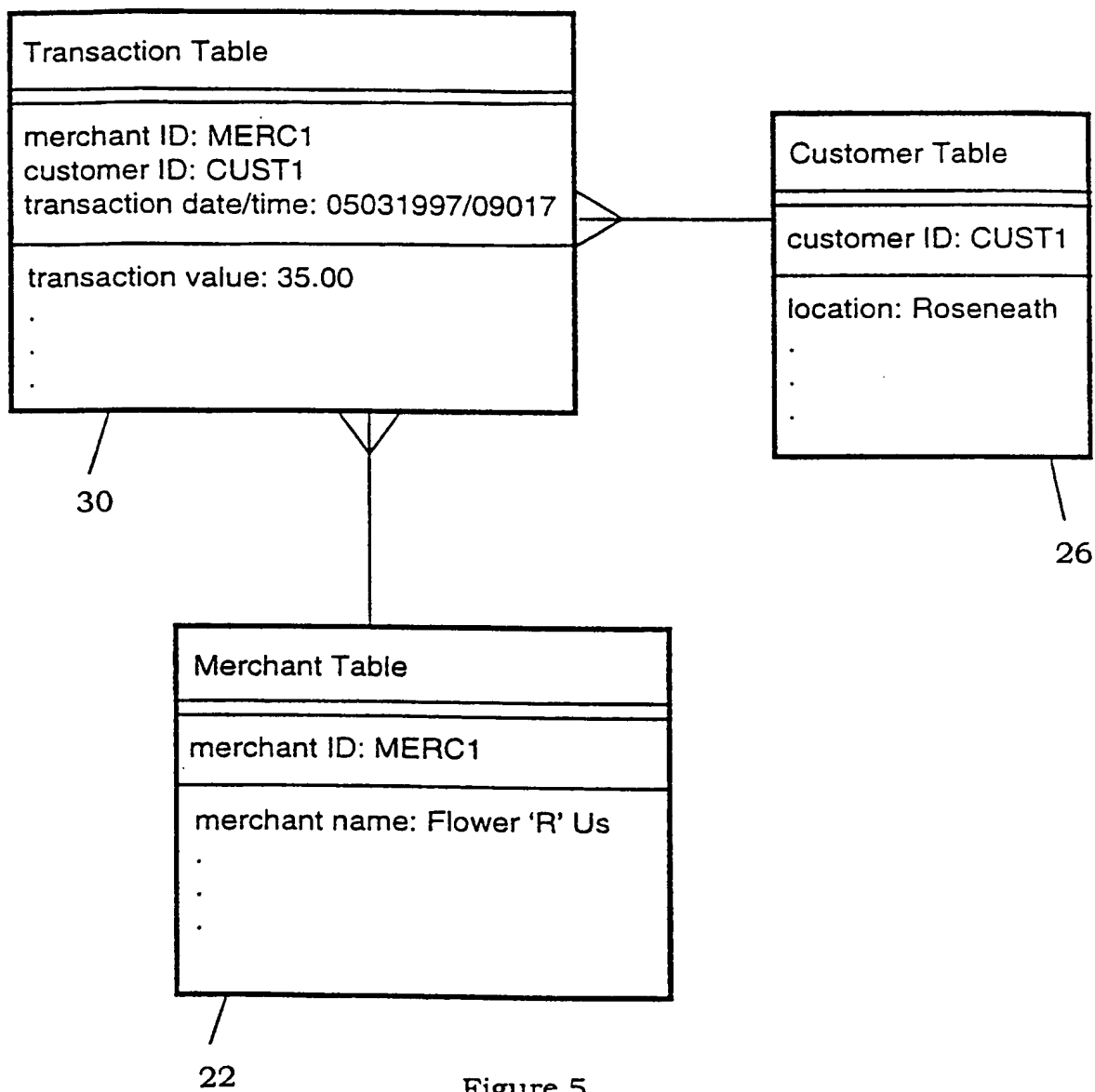


Figure 5

6/12

## General Demographics

Flowers R Us customers are in general

- Low numbers of Maori and Pacific Islanders
- Likely to have qualifications
- Less likely to be unemployed
- Less likely to be on income support
- Likely to have access to a motor vehicle
- Most likely to have access to two or more motor vehicles
- Likely to own their own homes
- Unlikely to earn \$15,000 or less
- Very likely to earn \$40,000 or more
- Average personal income \$22,000
- Average household income \$15,000
- Predominantly aged between 25 to 45 years old
- Least likely to have income between \$5,000 & \$10,000
- Most likely to have income over \$30,000
- More likely to be self employed or an employer of others
- More likely to in administrative type employment
- Most likely to be in "White Collar" employment

Figure 6

7/12

**Flowers R Us Customer Countries**

Country	% of Customers
New Zealand	87.2
Australia	5.5
Japan	2.4
USA	1.7
Other	3.2

Figure 7

8/12

## Flowers R Us Customer Types

Customer Type	NZ %	Your Regional %	Your Customers %	Your Customers in Region %
Educated Money	8.25	11.53	14.63	126.89
Inner City Professional	3.24	8.02	12.28	153.12
High Income Upwardly Mobile	5.14	11.01	19.09	173.39
White collar	9.19	12.35	14.26	115.47
Young Families in New Housing	6.31	5.54	2.46	44.40
Outer Suburban Families	9.27	4.70	2.18	46.38
Urban Singles	5.94	6.90	9.24	133.91
Provincial Middle NZ Families	6.95	0.03	0.00	0.00
Rural Lands	7.01	0.00	0.00	0.00
Coastal and Lake Retirement	4.78	0.04	0.00	0.00
Older Retirees Living Alone	8.13	7.92	2.68	33.84
Blue Collar Suburbia	14.69	15.32	6.02	39.30
Single and Separate	5.51	7.91	15.91	201.14
Maori & Pacific Is. Families	5.59	8.73	1.25	14.32
Totals	100.00	100.00	100.00	

Figure 8

9/12

# Flowers R Us Geographical Density Maps

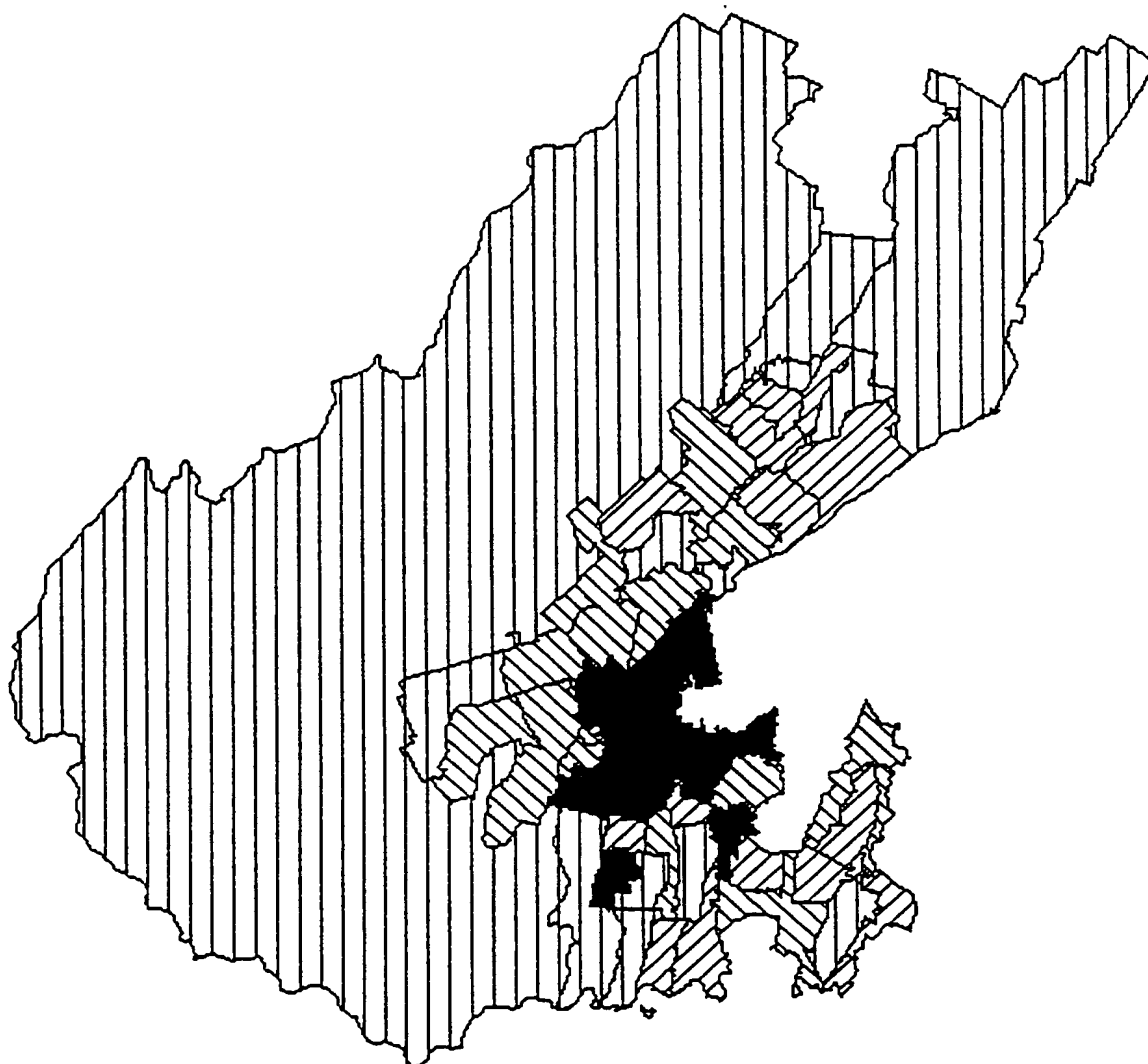


Figure 9

10/12

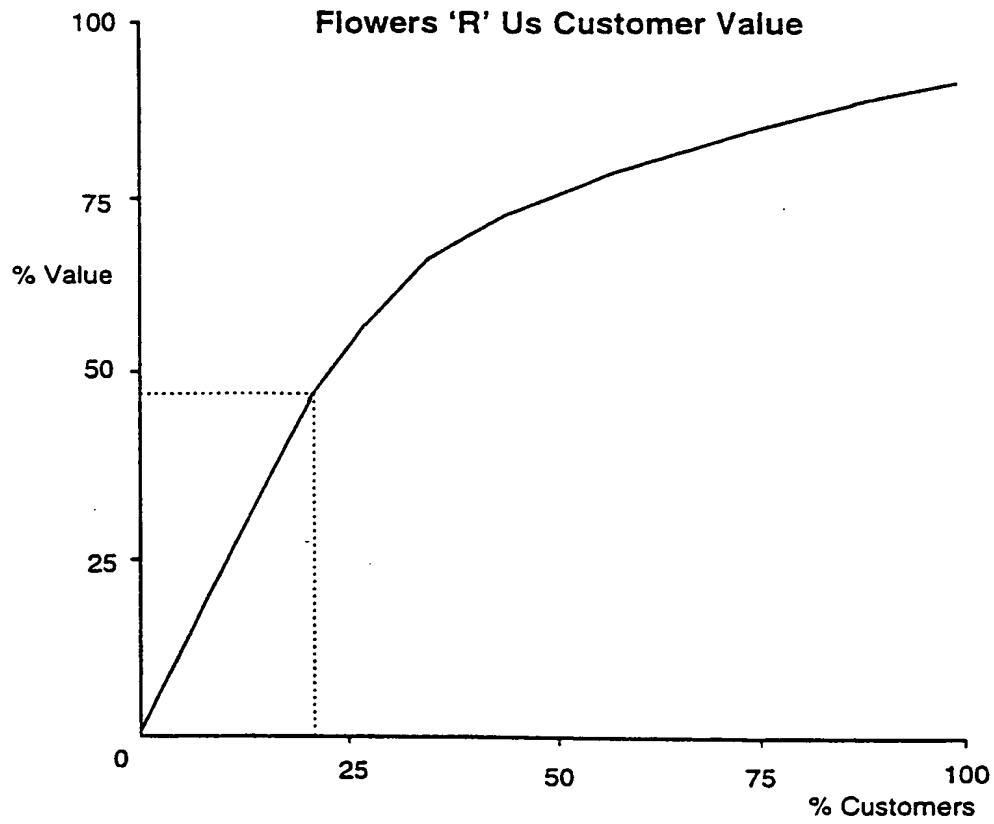


Figure 10

11/12

**Merchants**

Flowers R Us customers are also customers of the following merchants

Merchant	% of your customers ever
Peter's Petrol Ltd	35.9%
Jay's Jeans	32.4%
Bob's Bar	24.7%
Simon's Supermarket	24.4%
Design Shop	21.0%
Pizza 2 Go	19.5%
Ken's Cabs	14.3%

Figure 11

12/12

**Repeat Purchases**

	% of Customers
1 Purchase	34
2 Purchases	26
3 Purchases	12
4 Purchases	11
5+ Purchases	17

Figure 12

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/NZ 98/00103

**A. CLASSIFICATION OF SUBJECT MATTER**

Int Cl<sup>6</sup>: G06F 17/30

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
G06F 17/30

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
WPAT. USPTO

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97/22074 A1 (CYBERGOLD INC.) 19 June 1997 Whole document	1-13
X	WO 97/15023 A1 (CITIBANK N.A.) 24 April 1997 Whole document	1-13
X	WO 96/41288 A1 (E-SYSTEMS, INC.) 19 December 1996 Whole document	1-13

☒ Further documents are listed in the  
continuation of Box C

☒ See patent family annex

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search  
18 December 1998

Date of mailing of the international search report  
24 DEC 1998

Name and mailing address of the ISA/AU  
AUSTRALIAN PATENT OFFICE  
PO BOX 200  
WODEN ACT 2606  
AUSTRALIA  
Facsimile No.: (02) 6285 3929

Authorized officer  
*R. Stopford*  
R. STOPFORD  
Telephone No.: (02) 6283 2177

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/NZ 98/00103

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	AU 55282/94 A1 (MOORE BUSINESS FORMS, INC.) 1 September 1994 Whole document	1-13

## INTERNATIONAL SEARCH REPORT

### Information on patent family members

International application No.  
**PCT/NZ 98/00103**

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
WO	9722074	AU	14153/97	CA	2240314	US	5794210
WO	9715023	AU	75160/96	CA	2234026	EP	856178
WO	9641288	AU	62525/96				
END OF ANNEX							